

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

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P O Box 781218
2146 SANDTON
AFRIQUE DU SUD

PCT

NOTIFICATION OF TRANSMITTAL OF THE INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(PCT Rule 71.1)

Date of mailing
(day/month/year)

01.02.2006

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|---|--|--|--|
| Applicant's or agent's file reference P27560PC01 | | IMPORTANT NOTIFICATION | |
| International application No. PCT/IB2004/052178 | International filing date (day/month/year) 22.10.2004 | Priority date (day/month/year) 24.10.2003 | |
| Applicant OZONE WASH (PTY) LIMITED et al. | | | |

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

| | | |
|--|---|---|
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Moris, A Tel. +49 89 2399-2973 |  |
|--|---|---|

PATENT COOPERATION TREATY
PCT
INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)
(PCT Article 36 and Rule 70)

| | | | |
|---|--|--|-----------------------|
| Applicant's or agent's file reference P27560PC01 | FOR FURTHER ACTION | | See Form PCT/IPEA/416 |
| International application No. PCT/IB2004/052178 | International filing date (day/month/year) 22.10.2004 | Priority date (day/month/year) 24.10.2003 | |
| <p>International Patent Classification (IPC) or national classification and IPC A47L15/00</p> <p>Applicant OZONE WASH (PTY) LIMITED et al.</p> | | | |
| <p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of 3 sheets, as follows:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p> <p>4. This report contains indications relating to the following items:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Box No. I Basis of the opinion <input type="checkbox"/> Box No. II Priority <input checked="" type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input checked="" type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application | | | |
| Date of submission of the demand 16.08.2005 | Date of completion of this report 01.02.2006 | | |
| Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 | Authorized Officer Papadimitriou, S Telephone No. +49 89 2399-2760 | | |

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/IB2004/052178

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - This report is based on translations from the original language into the following language, which is the language of a translation furnished for the purposes of:
 - international search (under Rules 12.3 and 23.1(b))
 - publication of the international application (under Rule 12.4)
 - international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements*** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

Description, Pages

1-14 as originally filed

Claims, Numbers

1-16 received on 18.08.2005 with letter of 18.08.2005

Drawings, Sheets

1/1 as originally filed

a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing

3. The amendments have resulted in the cancellation of:
 - the description, pages
 - the claims, Nos.
 - the drawings, sheets/figs
 - the sequence listing (*specify*):
 - any table(s) related to sequence listing (*specify*):

4. This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

the description, pages
 the claims, Nos.
 the drawings, sheets/figs
 the sequence listing (*specify*):
 any table(s) related to sequence listing (*specify*):

* If item 4 applies, some or all of these sheets may be marked "superseded."

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IB2004/052178

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been examined in respect of:
 - the entire international application,
 - claims Nos. 9-12

because:

 - the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (specify):
 - the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
 - the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
 - no international search report has been established for the said claims Nos. 9-12
 - the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

| | |
|----------------------------|--|
| the written form | <input type="checkbox"/> has not been furnished |
| | <input type="checkbox"/> does not comply with the standard |
| the computer readable form | <input type="checkbox"/> has not been furnished |
| | <input type="checkbox"/> does not comply with the standard |

the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

See separate sheet for further details

**INTERNATIONAL PRELIMINARY REPORT
ON PATENTABILITY**

International application No.
PCT/IB2004/052178

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

| | | |
|-------------------------------|-------------|-----------|
| Novelty (N) | Yes: Claims | 1-8,15,16 |
| | No: Claims | 13,14 |
| Inventive step (IS) | Yes: Claims | 1-8,15,16 |
| | No: Claims | |
| Industrial applicability (IA) | Yes: Claims | 1-8,13-16 |
| | No: Claims | |

2. Citations and explanations (Rule 70.7):

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. Claims 9-12

These claims correspond to originally filed claims 11-14 for which no International search report has been established. Consequently, no examination can be carried out for these non-searched claims (cf. Art. 33(6) PCT and PCT Guidelines §17.34).

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Independent claims 1 and 15

Closest prior art: Document JP-A-04089023 directed to the treatment of ware by rinsing same with warm water having a biocide dissolved therein.

Objective technical problem: enhance the cleaning process by ensuring that the maximum amount of biocide is used for treating the ware.

Solution: the introduction by appropriate means of the biocide into the washing chamber of the ware washer in a gaseous state and independently of the wash water.

Technical effect: readily adjusting of the amount of biocide introduced into the washing chamber as the biocide must not dissolve in the wash water.

Inventive step: In JP-A-11137882 ozone is used to treat the dirty waste water, not the wash water intended for ware cleaning.

DE-A-3232057 is similar to the one known from JP-A-04089023 (cf. pg. 7, line 26 - pg. 8, line 8 and fig. 2).

EP-A-0841427 discloses a laundry process in which water is cycled from the washer chamber, through an ozone injector, and back to the washer chamber to react with

soils and stains in the wash load to thereby enhance the laundry process. The ozone injector is a venturi type device which feeds the ozonated compressed air into water travelling through the throat of the venturi to thereby entrain bubbles of the ozonated air in the water prior to its return to the washer chamber to react with soils and stains in the wash load to thereby enhance the laundry process.

Industrial applicability: The claimed process and warewasher are susceptible of use in an industrial environment.

Conclusion: Consequently, the subject-matter of independent claims 1,13 and 15 complies with the provisions of Article 33, paragraphs (2)(3)(4) PCT.

2. Dependent claims 2-8,16

These dependent claims define various embodiments of the method specified in independent claim 1 and the apparatus defined in independent claim 15, respectively, and as such also comply with the provisions of Article 33 paragraphs (2)(3)(4) PCT.

3. Independent method claim 13

3.1 Subsisting claim 13 is directed to the use of a biocide in a ware washing process and as such to an activity. The term "in" does not unequivocally limit the use of the biocide to the particular ware washing process defined in the claim. It merely defines the use of the product (biocide) in a particular process, the product not being defined by its material features.

3.2 As such the particular washing process to which the biocide is intended to be used does not unequivocally limit the scope of the claim.

In the terms of claim 13 document DE-A-3232057 is also directed to the use of a biocide in a ware washing process in a dishwasher (cf. fig. 2 and relevant description thereof).

Consequently, the provisions of Art. 33(1) PCT are not complied with because claim 13 does not comply with Art. 33(2) PCT.

**INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY
(SEPARATE SHEET)**

International application No.

PCT/IB2004/052178

4. Dependent claim 14

DE-A-3232057 also discloses the use of ozone as a biocide (cf. pg. 7, line 28) and as such claim 14 is not novel contrary to Art. 33(2) PCT.

Re Item VII

Certain defects in the international application

1. Description

- 1.1 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in the documents JP-A-04089023 and DE-A-3232057 is not mentioned in the description, nor are these documents identified therein.
- 1.2 The description is not in conformity with the claims as required by Rule 5.1(a)(iii) PCT.

Claims

1. A ware washing process including the steps of:
 - 5 (i) washing wares in the form of items which are used in the preparation and consumption of food and drink in a washing cavity of a ware washer with water and a ware washing detergent;
 - 10 (ii) rinsing the ware in the ware washer with water; and
 - 15 (iii) introducing a biocide into the washing cavity of the ware washer in order to provide a gaseous atmosphere thereof in the washing cavity, the biocide being introduced into the washing cavity prior to or contemporaneously with or subsequently to the washing or rinsing of the ware, and wherein the biocide is introduced in gaseous phase into the washing cavity independently of the water.
- 20 2. The ware washing process of claim 1, wherein the biocide is introduced into the cavity at a cavity temperature of between 15°C to 25°C.
- 25 3. The ware washing process of any one of the preceding claims, wherein the biocide is introduced into the washing cavity at a pH of between 2 and 12.
- 30 4. The ware washing process of any one of the preceding claims, wherein the biocide is introduced at a pH of between 4 and 6 during a pre-rinse step carried out before the washing step of step (i).
5. The ware washing process of any one of the preceding claims, wherein water used in the ware washing process and exposed to the biocide is recycled.
6. The ware washing process of any one of the preceding claims, wherein the biocide is ozone.

7. The ware washing process of claim 6, wherein the ozone is generated by means of an ozone generator having an ozone outlet in fluid flow communication with the washing cavity of the ware washer.

5

8. The ware washing process of any one of the preceding claims, wherein the water is at a temperature of below 35°C.

9. The ware washing process of any one of the preceding claims, wherein the ware washing detergent includes an inorganic alkali, a complexing agent and at least one surfactant.

10. The ware washing process of claim 9, wherein the ware washing detergent comprises:

15

| Component | % composition (by mass) |
|-------------------------------|----------------------------|
| EDTA | 4.00 |
| NTA | 7.00 |
| Caustic soda lye | 40.05 |
| Water (softened) | 46.70886 |
| Triton BG-10 | 0.06615 |
| Triton CF-32 | 0.08976 |
| Bayhibit™ AM or Belclene® 650 | 0.01963 |
| Water (softened) | 2.0656 |

11. The ware washing process of any one of the preceding claims, wherein a rinse aid composition is used during rinsing, the rinse aid composition comprising at least one alkoxylated alcohol; and an acid.

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12. The ware washing process of claim 11, wherein the rinse aid composition comprises:

| Component | % composition (by mass) |
|----------------------|----------------------------|
| Propyl alcohol | 40.00 |
| Citric Acid | 0.10 |
| Water (softened) | 49.40 |
| Synperonic™ LF/RA30 | 5.50 |
| Synperonic™ LF/RA260 | 5.00 |

13. Use of a biocide in a ware washing process for washing wares used in the preparation and consumption of food and drink, the biocide being introduced into a washing cavity of a ware washer in gaseous phase, independently of water so as to provide a gaseous atmosphere thereof in the washing cavity.

14. The use of claim 13, wherein the biocide is ozone.

15. A ware washer (10), connectable to a source of water, the ware washer including a washing cavity (25), wherein ware (32) in the form of items which are used in the preparation and consumption of food and drink may be loaded therein, a water inlet (35) for introducing water into the washing cavity (25) and at least one inlet (45) for introducing detergent or rinse aid into the washing cavity, the ware washer being characterised in that it includes introduction means for introducing biocide into the washing cavity in gaseous phase and independently of water so as to provide a gaseous atmosphere thereof in the washing cavity.

16. The ware washer of claim 15, wherein the biocide is ozone and the introduction means includes an ozone generator (15) having an ozone outlet (20) in fluid flow communication with the washing cavity (25) of the ware washer (10).